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# JIS

**JAPANESE INDUSTRIAL STANDARD**

**Test method for  
colour fastness to rubbing**

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## JAPANESE INDUSTRIAL STANDARD

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Test method for colour fastness to rubbing

L 0849-1996

1. **Scope** This Japanese Industrial Standard specifies a method for determining the resistance of the colour of the dyed textiles to rubbing.

Remarks 1. The following standards are cited in this Standard :

JIS L 0801 General principles of test methods for colour fastness

JIS L 0803 Standard adjacent fabrics for staining of colour fastness test

JIS L 0805 Grey scale for assessing staining

JIS R 6253 Waterproof abrasive papers

2. The following is the International Standard corresponding to this Standard :

ISO 105-X12 : 1993 Textiles - Tests for colour fastness - Part X12 : Colour fastness to rubbing

2. **Principle** In this test, the specimen is rubbed with an undyed cotton cloth for rubbing in a specified way using rubbing tester. The staining of the undyed cotton cloth is compared with the grey scale for assessing staining and the colour fastness is assessed.

3. **Classification** Test shall be classified into two kinds of dry rubbing test and wet rubbing test.

4. **Apparatus and materials** The following apparatus and materials shall be used :

(1) **Rubbing tester**

(1.1) **Rubbing tester type I (crook meter)** This tester consists of specimen stage, waterproof abrasive paper, rubbing finger, loading arm, horizontal reciprocation device, etc. as shown in Fig. 1, and shall conform to the following specification :

(a) **Specimen stage** Metallic or wooden stage finished by coating or the like so as not to be affected even at the time of wet test.

(b) **Waterproof abrasive paper** C, GC-P320 specified in JIS R 6253 or the one equivalent thereto and of the size measuring approximately 140 mm × 110 mm.

(c) **Rubbing finger** Of  $16 \pm 1$  mm in diameter ; with flat end surface ; made of rigid plastic, wood, or chemicalproof material and capable of fitting tightly the undyed cotton cloth measuring approximately 50 mm × 50 mm.

(d) **Loading arm** Constructed so as to be capable of applying a load of 9 N to the rubbing finger at one end and to make the rubbing finger possible to reciprocate horizontally on the specimen.

(e) **Horizontal reciprocation device (rubbing finger)** So constructed that the rubbing finger of the loading arm can reciprocate horizontally ten times for ten seconds along a 100 mm track on the specimen by a crank or the like.

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- (1.2) **Rubbing tester Type II (GAKUSHIN TYPE)** This tester consists of specimen stage, rubbing finger, loading arm, horizontal reciprocation device, etc. as shown in Fig. 2, and shall conform to the following specification :

- (a) **Specimen stage** Metallic stage of semi-round mandrel type of surface radius of 200 mm.
- (b) **Rubbing finger** Curved surface of 45 mm in surface radius, approximately 20 mm in length and approximately 20 mm in width ; made of chemicalproof metal material ; capable of fixing the undyed cotton cloth for rubbing measuring approximately 50 mm × 50 mm and of approximately 100 mm<sup>2</sup> in the area in contact with the undyed cotton cloth for rubbing.
- (c) **Loading arm** Its one end is kept by fixed axis, a load of 2 N is exerted on the rubbing finger at the other end, the distance from the center of the fixed axis to the center of rubbing finger is 110 mm and it is capable of rotating around the fixed axis.
- (d) **Horizontal reciprocation device (specimen stage)** Capable of reciprocating the specimen stage horizontally at a speed of 30 reciprocations per minute along a 120 mm track by crank, handle, etc. and capable of reciprocating the rubbing finger in a 100 mm track.

Fig. 1. Rubbing tester Type I

Unit : mm

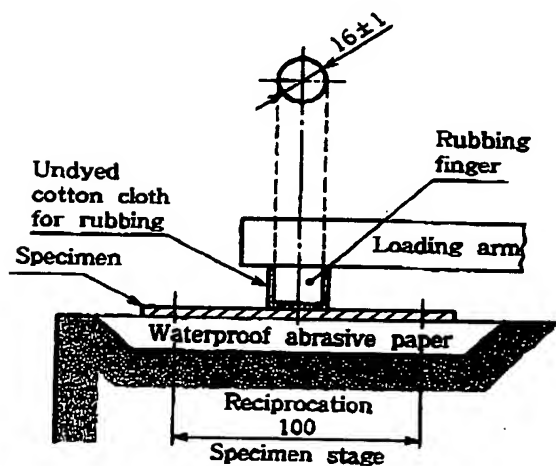
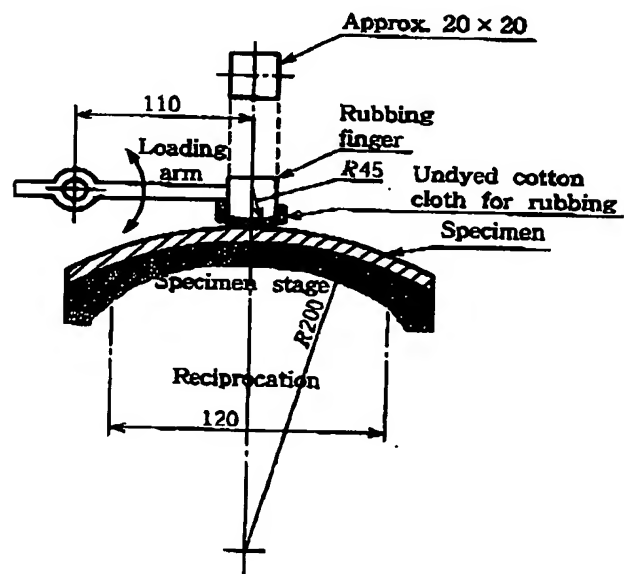


Fig. 2. Rubbing tester Type II

Unit : mm



- (2) **Undyed cotton cloth for rubbing** Nominal No. 3 (cotton) specified in JIS L 0803.
- (3) **Grey scale for assessing staining** Specified in JIS L 0805.

5. **Preparation of specimen** Specimen shall be prepared in accordance with 5.1 in JIS L 0801 except the cases shown in the following (1) and (2) :

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(1) Specimen taken from fabric sample

- (a) When testing by the rubbing tester type I, cut off two sheets each of specimen measuring approximately 140 mm × 50 mm in parallel with longitudinal and lateral directions respectively. Make the size of the undyed cotton cloth for rubbing approximately 50 mm × 50 mm.
- (b) When testing by the rubbing tester type II, cut off two sheets each of specimen measuring approximately 220 mm × 30 mm in parallel with longitudinal and lateral directions respectively. Make the size of the undyed cotton cloth for rubbing approximately 50 mm × 50 mm.

- (2) Specimen taken from yarn sample If the sample is yarn, form a thin layer by wrapping it tightly on a rectangular cardboard of the same size as in (1) in parallel with its longer side direction, or knit it into suitable fabric to provide specimen.

6. Procedure

- 6.1 Dry rubbing test Allow the specimen and the undyed cotton cloth for rubbing to stand in advance in a standard condition (1) for four hours or more.

Note (1) In compliance with 6.(1) in JIS L 0801.

- (1) When testing by rubbing tester type I Mount the specimen (2) on the waterproof abrasive paper placed on the specimen stage and attach the undyed cotton cloth for rubbing to the tip of the rubbing finger to reciprocate rubbing ten times for ten seconds along a 100 mm track on the specimen exerting a load of 9 N (3).

Notes (2) If the specimen is cloth, carry out the test on the specimens of longitudinal and lateral directions respectively.

(3) The mass of rubbing finger is to be approximately 900 g.

- (2) When testing by rubbing tester type II Mount the specimen on the specimen stage and attach the undyed cotton cloth for rubbing to the tip of the rubbing finger respectively, and reciprocate rubbing motion 100 times at a speed of 30 reciprocations per minute along a 100 mm track on the specimen exerting a load of 2 N (4).

Note (4) The mass of rubbing finger is to be approximately 200 g.

- 6.2 Wet rubbing test After rubbing the specimen in the standard condition using the undyed cotton cloth for rubbing wetted with water to the approximately 100 % wet condition, dry it at the temperature not exceeding 60 °C.

- (1) When testing by rubbing tester type I 6.1 (1) applies.
- (2) When testing by rubbing tester type II 6.1 (2) applies.

7. Assessment The staining of the undyed cotton cloth for rubbing shall be assessed in accordance with 9. in JIS L 0801.

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8. Record The test results shall be recorded in accordance with 10. in JIS L 0801 as a rule for both dry rubbing and wet rubbing tests as shown in the following example:

Example: Rubbing test (rubbing tester type I)

Dry rubbing grade 4, Wet rubbing grade 2 (longitudinal direction)

Dry rubbing grade 4, Wet rubbing grade 2 (lateral direction)

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